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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BROWN, JAYME L

ART UNIT PAPER NUMBER

1733

DATE MAILED: 11/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/829,225

Applicant(s)

SUZUKI, SHINJI

Examiner

Jayme L. Brown

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>6/15/05</u> . | 6) <input type="checkbox"/> Other: _____ |

FINAL ACTION

1. This action is in response to the amendments and arguments filed on 9/26/05.

All claim objections have been withdrawn in light of the amendments to the claims.

Information Disclosure Statement

2. The information disclosure statement submitted on 6/15/05 has been considered by the examiner.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schueller et al. (U.S. Patent 6,79,868) in view of the collective teachings of Ohtake et al. (U.S. Patent 5,780,148) and Usuki (U.S. Patent 5,914,151).

Regarding claims 1 and 2, Schueller et al. teaches a method for joining glass having a hydroxyl group containing surface to a joining material having a polymer silicon containing surface, such as PDMS, wherein the skilled artisan would have readily appreciated that PDMS inherently has organosiloxy groups on its surface. The organosiloxy group containing surface is oxidized using a plasma oxidation chamber,

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and the hydroxyl group containing surface is adhered to the oxidized organosiloxy group containing surface (Column 13, lines 53-65).

Schueller et al. are silent toward the organosiloxy group containing surface being irradiated with ultraviolet radiation to carry out the oxidation treatment. It is well known and conventional in the art to use ultraviolet radiation to oxidize a substrate surface as an alternative to using plasma treatment, as shown for example by Ohtake et al. (Column 1, lines 26-31; Column 5, lines 43-47). One reading Schueller et al. as a whole would have appreciated that a particular oxidation treatment is not critical to the invention; therefore, the skilled artisan would have been motivated to use UV radiation as an alternative to plasma oxidation as they are both conventional oxidation methods that are alternate expedients obvious over one another and have the same results, as evidenced by Ohtake; especially in light of the fact that it is known in the art to treat a silicon containing surface with UV radiation in order to oxidize the surface, as shown by Usuki (Column 15, lines 1-13).

Schueller et al. are also silent towards the ultraviolet radiation having a wavelength of less than 220 nm. Usuki teaches that it is preferable to use a low pressure mercury vapor lamp or an excimer lamp that produces ultraviolet rays having a wavelength of at most 200 nm, for example 185 nm, when carrying out an oxidation treatment (Column 15, lines 1-13). One skilled in the art would have readily appreciated using a low pressure mercury vapor lamp or an excimer lamp when carrying out the oxidation process, because they can produce the desired wavelengths (under 220 nm) and because the time required for oxidation treatment can be kept short.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Schueller et al. (U.S. Patent 6,79,868) in view of the collective teachings of Ohtake et al. (U.S. Patent 5,780,148) and Usuki (U.S. Patent 5,914,151) as applied to claims 1 and 2 above, and further in view of Hess et al. (U.S. Patent 6,627,588).

Regarding claim 3, Schueller et al., Ohtake et al., and Usuki are relied upon for the teachings above. Schueller et al. are directed to silicon-containing surfaces in general, where PDMS is only an example (Column 11, lines 27-40); therefore, a silicon-containing surface not having organosiloxy groups inherently present on its surface (i.e. silicon wafer) is well within the scope of the reference wherein such a surface would have to be modified to create organosiloxy groups thereon before being treated with UV radiation. Therefore, Schueller et al. is silent toward treating the silicon-containing surface with hexamethyldisilazane (HMDS) to form organosiloxy groups on its surface.

Hess et al. teaches using hexamethyldisilazane (HMDS) to coat a silicon-containing surface in order to enhance adhesion between the silicon-containing surface and another substrate (Column 4, lines 40-44; Figure 1B). It is noted that applicant creates organosiloxy groups on the silicon-containing surface by treating it with HMDS; therefore, Hess's treating the silicon-containing surface with HMDS would also create organosiloxy groups on the surface. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to treat the silicon-containing surface of Schueller et al. using HMDS to form organosiloxy groups thereon before treating the surface with UV radiation because such is known in the art, as taught by Hess et al., where treating with HMDS would enhance adhesion.

Response to Arguments

6. Applicant's arguments filed 9/26/05 have been fully considered but they are not persuasive.

On Page 7 of Applicant's reply, Applicant argues that Schueller et al. does not teach or suggest carrying out an oxidation treatment by irradiating ultraviolet radiation having wavelength of 220 nm or less. On page 8 of Applicant's reply, Applicant argues that Ohtake et al. only discloses a thin film; therefore it conflicts with the teachings of Schueller et al. Applicant also argues that neither Ohtake et al. nor Schueller et al. disclose irradiating the organosiloxy group containing surface being irradiated by ultraviolet radiation having a wavelength of 220 nm or less, and that Schueller et al., Ohtake et al., Usuki, and Hess et al. do not disclose the Applicant's desired effects and cannot be modified or combined because there can be no suggestion or motivation.

Schueller et al. discloses the method for joining glass to a joining material having an organosiloxy group containing surface, wherein the organosiloxy containing surface is oxidized. While Schuller et al. shows oxidation through plasma treatment, it is considered well known in the art to provide UV radiation as a known equivalent in the art for oxidation. Ohtake et al. and Usuki are cited merely as examples in the art that it is conventionally known to use UV radiation as an equivalent alternative to plasma for oxidation.

Usuki is further cited to show that it is known, when providing UV treatment to oxidize layers, that the wavelength applied is less than 220 nm, in particular to glass substrates (Column 4, line 58 – Column 5, line 31). One skilled in the art would have

readily recognized that when applying UV treatment to oxidize layers that such is applied at wavelengths less than 220 nm, as such is a conventional range used in the art as exemplified by Usuki.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Jayme L. Brown** whose telephone number is **571-272-8386**. The examiner can normally be reached on M-F.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on 571-272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jayne L. Brown

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GLADYS J.P. CORCORAN
PRIMARY EXAMINER